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Abstract

This chapter examines the structures and processes of learning organizations that are capable of engaging in both exploitative and explorative learning. Drawing on structuration theory and paradox thinking, it argues that a focus on the dynamic interplay between structure and agency, and the interdependence between opposite forces in organizations are crucial for understanding ambidextrous learning organizations. The analysis distinguishes three types of ambidextrous learning organizations, labelled as 'partitional', 'contextual' and 'alliance', each with its distinct structural configurations, learning spaces and agents. While the existing literature emphasizes 'balancing' exploitative and explorative learning, this chapter argues that 'counter-balancing' the drift towards exploitative learning poses a major challenge. The three types share the common characteristic of allowing 'free' spaces within the constraints of structures that enable the key learning agents to counter-balance this drift and sustain ambidextrous learning.

Keywords: Ambidexterity, ambidextrous learning, exploitation, exploration, learning organizations, organizational learning, structure, agency, paradox theory

Ambidextrous learning organizations

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Introduction

The dual search for stability and flexibility constitutes a central paradox in all forms of organizing (Farjoun 2010; Thompson 1967). For a long time, organizational theorists have maintained that the structures and processes that support stability and reliability were largely incompatible with those needed for flexibility, learning and change. Much of the literature on the relationship between organizing and learning has remained grounded in a dualistic perspective based on over-simplified polarized concepts which obscure the complex dynamics of organizational life. Organizational design theories, for example, have long been dominated by the contingency framework which focuses on environmental conditions that drive the choice between two alternative models of organization: “mechanistic” vs. “organic” (Burns and Stalker 1961). Whereas the former is seen as suitable for stable task environments and good for efficiency; the latter is regarded as more suitable for complex tasks and dynamic environments in which flexibility, learning and innovation are important (Burns and Stalker 1961; Mintzberg 1979). According to this lens, effective organizing requires managers to choose between alternative forms that best align with their strategic goals and the external environment. This “either/or” framework is also reflected in the literature on organizational learning which makes the parallel argument that there is a trade-off between “exploitation,” the refinement and implementation of existing knowledge, and “exploration,” the search for and development of new knowledge (March 1991). Exploitation is similar to “single-loop,” “adaptive” learning and exploration is consistent with “double-loop,” “generative” learning

(Argyris and Schön 1978; Senge 1993). A widely held view is that the structures, processes, and cognitive frameworks supporting the two types of learning are largely incompatible (Gupta, Smith, and Shalley 2006; Levinthal and March 1993).

The idea that there is a “trade-off” between “mechanistic” and “organic” forms of organizing, and between “exploitative” and “explorative” learning pervades our conceptualization of learning organizations. This arises in part from the bifurcation in theory between social constraint (structure) and social action (agency) (Dougherty 2008). While social constraint and social action are different properties of the social order, there is a recursive and mutually constitutive relationship between them (Giddens 1984). However, organizational scholars have tended to emphasize one side of the social phenomenon and the internal logic of the partial reality instead of revealing the connections between different aspects of the same social order. As a result, the simplified polarized concepts for distinguishing aspects of social reality come to be seen as distinct, immutable entities of the underlying empirical reality (Farjoun 2010).

The “either/or” framework over-simplifies the complexity of organizational life, and is ill suited for understanding the nature of learning organizations operating in multiple and dynamic environments. Organizations are by nature ambivalent and oppositional tendencies are inherent in all forms of organizing. Paradox theory of organization recognizes the importance of a focus on contradictions and oppositional forces as dualities (Smith and Lewis 2011; Smith, Lewis, Jarzabkowski, and Langley 2017). It has been suggested that the dualistic facets of organizations may in fact be complementary rather than oppositional (Lewis 2000). Research suggests that many large innovative firms combine contrasting structures and processes to engage in both exploitative and explorative learning in order to maintain current efficiency and sustain long-term adaptability (O’Reilly III and Tushman 2008). Against this backdrop, the concept of “organizational ambidexterity” has gained popularity as a central

research paradigm in organizational theory, most notably, in relation to learning, innovation and adaptation (Andriopoulos and Lewis 2009; Raisch, Birkinshaw, Probst, and Tushman 2009; Raisch, Hargrave, and Van De Ven 2018). It has been widely used in the literature broadly to refer to “an organization’s ability to perform differing, and often competing, strategic acts at the same time” (Simsek, Heavey, Veiga, and Souder 2009, 693). These competing acts could cover a range of areas including achieving flexibility and efficiency (Eisenhardt, Furr, and Bingham 2010), alignment and adaptability (Gibson and Birkinshaw 2004) and exploitative and explorative learning (Kang and Snell 2009). The ambidexterity concept is theoretically significant and practically important because it challenges the orthodox either/or thinking and highlights the learning challenges facing organizations in the contemporary environment characterized by growing pressures for meeting multiple and inconsistent demands.

This chapter examines the structures and processes of learning organizations that are capable of engaging in both exploitative and explorative learning. Drawing on the insights of structuration theory (Giddens 1984) and paradox thinking (Smith and Lewis 2011; Smith, Lewis, Jarzabkowski, and Langley 2017), it argues that a focus on the dynamic interplay between structure and agency, and the interdependence between opposite forces in organizations are crucial for understanding the nature of ambidextrous learning organizations. The analysis distinguishes three types of ambidextrous learning organizations, labelled as “partitional,” “contextual,” and “alliance,” each with its distinct structural configurations (“dual,” “semi,” and “overlapping”), learning spaces (“strategic apex,” “workplace,” and “hybrid space”) and learning agents (“top management teams,” “operating core,” and “boundary-spanners”). While the existing literature emphasizes “balancing” exploitative and explorative learning, this chapter argues that “counter-balancing” the drift towards exploitative learning poses a major challenge. The three types share the common

characteristic of allowing “free” spaces within the constraints of structures that enable the key learning agents to counter-balance this drift and sustain ambidextrous learning.

The chapter is structured as follows. The next section provides a brief review of the literature on organizational ambidexterity. This is followed by a conceptual framework, explaining why creating free spaces for actor agency is the cornerstone for developing ambidextrous learning organizations. The chapter then examines three different types of ambidextrous learning organizations, and it concludes by discussing their significance.

Organizational ambidexterity

Balancing exploitative and explorative Learning

Since the seminal work of March (1991), an enduring debate in the literature on organizational learning has been whether organizations can pursue exploitative and explorative learning simultaneously. While the former refers to activities that refine and deepen existing competences and focuses on implementation of existing knowledge, the latter involves searching for new opportunities through recombination and experimentation to expand knowledge into novel areas ((Jansen, George, Van den Bosch, and Volberda 2008; March 1991; Tempelaar and Rosenkranz 2017). Exploitative learning is associated with organizational consistency, stability and control; and explorative learning is associated with experimentation, flexibility and risk-taking. Early studies adopted a trade-off view and emphasized the insurmountable barriers to combining these two types of learning (Adler, Goldoftas, and Levine 1999; Levinthal and March 1993). According to March (1991), exploitation and exploration place inherently conflicting resource, cognitive and managerial

demands on organizations. However, he also suggested that maintaining balance between the two types of learning is critical for the long-term success of organizations. More specifically, he argued that organizations that place too much emphasis on exploitation to the exclusion of exploration risk falling into competency traps, inertia, and ultimately obsolescence. By contrast, those that focus too much on exploration to the exclusion of exploitation risk having too many underdeveloped ideas, too little distinctive competence and failing to gain returns from their knowledge (Levinthal and March 1993; March 1991).

Building on this early insight, recent research on organizational ambidexterity has gradually shifted the debate from the trade-off view towards a paradox perspective that recognizes the co-existence and inter-dependence between exploitation and exploration (Andriopoulos and Lewis 2009; Papachroni, Heracleous, and Paroutis 2015; Raisch and Zimmermann 2017). It focuses on how organizations develop structures and processes for managing the simultaneous pursuit of both. Tushman and O'Reilly (1996) were first to present a theory of organizational ambidexterity by examining the dual structures that enabled firms to exploit existing competences while simultaneously exploring new possibilities to compete in both mature and emerging markets. They suggested that engaging in both types of learning was the key to superior performance and long-term success. Since then, the concept of ambidexterity has gained momentum as a new research paradigm in organizational theory. An emerging body of literature demonstrates the complementary effects of exploitation-exploration and suggests that it is possible for firms to develop dual capabilities by combining contrasting structures and processes to engage in both types of learning (Luger, Raisch, and Schimmer 2018; O'Reilly III and Tushman 2008; Tushman, Smith, Wood, Westerman, and O'Reilly 2010). Some authors highlight the “learning synergies” or a “virtuous circle of ambidexterity” enabled by exploitation and exploration efforts (Andriopoulos and Lewis 2009; Jansen, Van Den Bosch, and Volberda 2006). Others examine how human resource

configurations (Diaz-Fernandez, Pasamar-Reyes, and Valle-Cabrera 2017; Kang and Snell 2009), top management teams (Heavey and Simsek 2017; Lubatkin, Simsek, Ling, and Veiga 2006; Mom, Van Den Bosch, and Volberda 2007; Oehmichen, Heyden, Georgakakis, and Volberda 2017; Smith and Tushman 2005) and organizational context/culture (Gibson and Birkinshaw 2004; Kauppila and Tempelaar 2016; Kauppila 2018; Zimmermann, Raisch, and Cardinal 2018) facilitate ambidextrous learning.

Indeed, the idea that a learning organization, by nature, has to be ambidextrous was implicit in the early work of Argyris and Schön (1978) who argued that all organizations need to master single-loop learning for getting routine work done and also develop double-loop learning capacities in order to evaluate and question their current actions. The notion of a learning organization elaborated by Garvin (1993) and Pedler, Burgoyne, and Boydell (1991) reinforce this view. Garvin (1993, 3) defined a learning organization as “an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behaviour to reflect knowledge and insights.” This implies that in addition to acquiring and using knowledge (exploitation), the ability of an organization to adapt and transform itself in response to the knowledge and insights gained (exploration) is a critical defining feature. Similarly, Pedlar, Burgoyne and Boydell’s (1991) definition of a “learning company” also stresses the importance of organizational adaptability and transformation in addition to the continuous learning of all its members. In other words, a defining feature of a learning organization is the engagement in both types of learning for adaptability and an ability to transform itself.

Combining alternative models of learning organizations: the “J-form” and “adhocracy”

The concept of organizational ambidexterity and emerging empirical evidence on its viability not only challenge the trade-off view in the exploitation–exploring learning debate, it also reveals the limitations of the “rational choice” organizational design ideas based on the contingency “fit” argument. The polar choice between mechanistic vs. organic forms (Burns and Stalker 1961) or between the ideal-type configurations of bureaucracies vs. adhocracies (Mintzberg 1979) fail to take into account the reality that organizations often do not fall unambiguously into one particular type or another. Ambidextrous or hybrid forms have always been around and are increasingly prominent in the contemporary environment. Adopting a paradox or dualistic lens for understanding these complex organizations calls for the need to drop the polarized concepts and decouple structural mechanisms from outcomes. The accepted understanding of certain structural forms does not fully capture their richness and variable effects on human behaviour (Farjoun 2010). Several studies have shown that bureaucracies, despite commonly being regarded as constraining and coercive, can be flexible (Adler and Borys 1996; Adler, Goldoftas, and Levine 1999) and instrumental for learning and innovation (Dougherty and Takacs 2004). High reliability organizations use extensive rules and careful enactment of current knowledge to ensure reliability but also allow for rule breaking, situated learning and innovation when confronted with non-routine problems or crisis situations (Levinthal and Rerup 2006; Milosevic, Bass, and Combs 2018).

The accepted wisdom that a learning organization is a flexible organization with an organic structure obscures the fact that there are different types of learning organizations characterized by variable learning structures, work contexts and organizational climates (Örtenblad 2002). During the past two decades, a large literature has discussed various learning organizational models designed to enhance flexibility and innovation. These include “high performance work systems” (Womack, Jones, and Roos 1990), “hypertext organization” (Nonaka 1994), “modular forms” and “project-based organizations” (Sydow,

Lindkvist, and DeFillippi 2004). A closer examination of the various models suggests that they can be broadly classified into two polar ideal types, namely, the “J-form” and “adhocracy” (Lam 2000, 2005). The former refers to an organization which is good at exploitative learning and derives its innovative capabilities from the development of organization-specific collective competences and problem solving routines. Its archetypal features are best illustrated by the “Japanese type” of organizations (Nonaka and Takeuchi 1995). Adhocracy (Mintzberg 1979), by contrast, tends to rely more upon individual specialist expertise organized in flexible market-based project teams capable of speedy responses to changes in knowledge and skills, and integrating new kinds of expertise to generate radical new products and processes. It is skilled at explorative learning. Both the “J-form” and “adhocracy” are learning organizations with strong innovative capabilities, but they differ markedly in their patterns of learning and the type of innovative competences generated.

The J-form relies on knowledge that is embedded in its operating routines, team relationships and shared culture. Learning takes place within an “organizational community” characterized by intensive interaction and knowledge sharing across functional units. New knowledge is generated through the fusion, synthesis and combination of the existing knowledge base. The J-form tends to develop a strong orientation towards pursuing an incremental innovation strategy and does well in relatively mature technological fields characterized by rich possibilities of combinations and incremental improvements. But its focus on nurturing organizationally embedded knowledge inhibits explorative learning. In contrast, the adhocracy is a hyper flexible form of organization that fuses professional experts with varied skills and knowledge into temporary project teams for solving complex and often highly uncertain problems. Learning and knowledge creation occur within professional teams that often are composed of employees from different organizations. The adhocracy has a much more permeable organizational boundary that allows the insertion of new ideas from outside. It is

a very adaptive form of organization conducive to explorative learning and radical innovation. However, the fluid structure and speed of change inhibit knowledge accumulation and exploitation. Adhocracies are the most radically innovative and yet least stable form of learning organizations (Lam 2000; Mintzberg 1979).

Until the late-1990s, the debate about developing learning organizations was preoccupied with the choice between these two alternative models. In recent years, the emphasis has shifted towards combining these two structural configurations for achieving ambidexterity. The idea of an ambidextrous learning organization, combining the exploitative learning of the J-form and the exploratory learning of the adhocracy, is an attractive one. However, our understanding of the structures, processes and individuals' learning behaviours in this type of organization remains limited. The next section seeks to shed light on these by explaining its theoretical rationale and the different ways in which organizations seek to achieve ambidextrous learning.

Ambidextrous learning organizations: structures, spaces and agents

Managing ambidextrous learning: balancing and counter-balancing

In light of March's (1991) insight that both exploitative and explorative activities are essential for organizational learning, the literature on managing ambidextrous learning has emphasized the importance of "balancing" the two types of activities so that neither is overly dominating (Lavie and Rosenkopf 2006; Luger, Raisch, and Schimmer 2018; Raisch, Birkinshaw, Probst, and Tushman 2009). The initial focus on structural design solutions has been extended to include the examination of organizational contextual factors and leadership roles in

maintaining the balance between the two types of activities. However, what is missing in much of the discussion is the challenge of “counter-balancing” the drift towards exploitation at the expense of exploration (Eisenhardt, Furr, and Bingham 2010). In an influential article on the “myopia of learning,” Levinthal and March (1993) warn that organizations have a tendency to overinvest in exploitative learning. This is, in part, because “exploitation generates clearer, earlier, and closer feedback. It corrects itself sooner and yields more positive returns in nearer term” (Levinthal and March 1993, 107). Moreover, a critical insight from theory of organizational evolution is that organizations are subject to strong inertial forces (Hannan and Freeman 1984). They have a tendency to favour structure and the certainty of exploitation as they grow and age (Sørensen and Stuart 2000). Structure increases over time as it becomes intertwined with valued performance outcomes and power relationships (Adler, Goldoftas, and Levine 1999). A similar self-reinforcing bias toward exploitation can also be observed at the level of individuals as their competences and routines are adapted to exploitative activities (Kaupila 2018). Argyris (1999, 89) aptly describes individuals as “walking social structures who cannot undergo double-loop learning without reflecting on [and challenging] their own actions.” Research has shown that the bias towards exploitation follows from the development of core capabilities which often turn into core rigidities (Leonard-Barton 1992). For both organizations and individuals, exploitation is more reassuring and the returns from it are more certain and immediate than returns from exploration (Benner and Tushman 2003; Levinthal and March 1993).

How can an organization “counter-balance” the drift towards exploitative learning? How is it possible for an organization to maintain its balanced positioning at the interface of two distinct learning organizations, the J-form and adhocracy, given the gravitational pull towards logical configurations and the exploitative certainty of the former? An important insight from Giddens’ (1984) structuration theory is that the purposive action of

“knowledgeable actors” is needed to produce countervailing forces for balancing. According to Giddens, structure is both the medium and outcome of human action. Structures (social constraints) and agency (social actions) are mutually constitutive, and both are necessary for organizing and learning. Structures are necessary because they coordinate and guide actions—people cannot act and learn together without the support of structures. Agency is also necessary because without the imagination, interpretive freedom and creativity of knowledgeable actors, organizations are unable to overcome the cognitive and social constraints of established structures in the way of improvisation and coping with unanticipated problems. In other words, for an organization to become ambidextrous, it needs to create “free spaces” within structures to allow the agency and discretion of individuals to alternate between exploitation and exploration, and more critically, to break the grip of organizational inertia in order to sustain explorative learning. The structural/organizational and behavioural/individual aspects of ambidexterity are closely linked.

Where and at which levels of an organization can free spaces be found? Who are the knowledgeable agents? What are the individual actions and behaviours that make ambidextrous organizational learning possible? Answers to these questions will be sought by looking at three types of ambidextrous learning organizations.

Three types of ambidextrous learning organizations: “partitional,” “contextual,” and “alliance”

The literature on organizational ambidexterity has proposed three distinct solutions for overcoming the tension between exploitation and exploration. The first is a structural partitional solution based on mechanisms of differentiation and integration. Tushman and O’Reilly (1996) first advocated the idea of “dual structures,” separating business units with

exploitation and exploration, assuming integration by the top management team. Subsequent research that builds on this partitional ambidexterity perspective has tended to focus on the critical role of top management teams in fostering ambidexterity (Heavey and Simsek 2017; Lubatkin, Simsek, Ling, and Veiga 2006; O'Reilly III and Tushman 2008). The second solution is a behavioural one suggested by Gibson and Birkinshaw (2004) based on the argument that a supporting organizational context can foster ambidextrous learning behaviours among individuals. Research on “contextual ambidexterity” emphasizes the importance of cross-functional teams and bilateral learning of individuals (Garaus, Güttel, Konlechner, Koprax, Lackner, Link, and Müller 2016; Kang and Snell 2009; Zimmermann, Raisch, and Cardinal 2018). While both the structural and contextual solutions seek to balance exploitation and exploration within a single organization, more recently scholars adopting a social network perspective have proposed a third solution which suggests balancing the two types of activities across organizational boundaries by using alliances and organizational networks (Im and Rai 2008; Lavie and Rosenkopf 2006; Stettner and Lavie 2014).

Prior research on organizational ambidexterity has focused on structural and organizational mechanisms for overcoming the exploitation-exploration tensions. More recently, scholars have paid increased attention to micro-level process of team dynamics (Oehmichen, Heyden, Georgakakis, and Volberda 2017), cognition (Heavey and Simsek 2017; Kauppila and Tempelaar 2016) and employee motivation (Kauppila 2018). Building on Giddens' (1984) structuration theory, which postulates a recursive relationship between structure and action, one might argue that both the structural and individual cognitive-motivational factors are critical for ambidextrous organizational learning. Based on the evidence gleaned from the literature, the analysis presented below distinguishes three types of ambidextrous learning organizations: “partitional,” “contextual,” and “alliance.” It examines the different ways in which these organizations create “free spaces” within their

“ambidextrous structural configurations” that enable key “learning agents” to reconcile the exploitation-exploration learning tension, and more critically, to overcome structural inertia and counter-balance the drift towards exploitation.

“Partitional:” dual structures, strategic apex and senior leaders. The partitional ambidextrous learning organization originates from Tushman and O’Reilly’s (1996) dual structure model. It involves compartmentalization and synchronization of exploitation and exploration activities undertaken in separate organizational units, allowing different structures, processes, and cultures to co-exist. It is based on the assumption that most individuals focus on either exploitation or exploration, and thus rely on organizational integrative mechanisms to coordinate the two types of activities. This model places heavy demands on tight managerial integration and strategic leadership for resolving conflicting demands and achieving learning synergies across units (Andriopoulos and Lewis 2009; Smith and Tushman 2005). O’Reilly III and Tushman (2008) describe ambidexterity in this context as a “dynamic capability” rooted in senior management cognition, competence and action. It is characterized as high-level organizational routines or routines to learn new routines (Eisenhardt and Martin 2000), and is seen as critical for sustaining organizational ambidexterity (Luger, Raisch, and Schimmer 2018).

Within this partitional model, the free space for ambidextrous learning and integrative action can be found at the strategic apex of the organization where senior leaders are the key actors. Positioning at the interface of the exploitative and explorative units, these people are relatively free from the constraints of both and are able to mobilize the differentiated insights and knowledge of both for ambidextrous learning. Previous research on ambidextrous leaders has tended to focus on their shared vision and common incentive systems for strategic integration and balancing exploitation–exploration (Jansen, George, Van den Bosch, and

Volberda 2008; O'Reilly III and Tushman 2008). More recently, several studies highlight the socio-cognitive diversity of top management teams as a critical factor that facilitates ambidextrous orientations and dual learning capacities. For example, Heavey and Simsek (2017) argue that top managers with diverse backgrounds and who join an organization at different points in its history are likely to differ in their social networks, knowledge and capabilities and their attachment to organizational norms and practices. Further, their study shows that the development of a transactive memory system (Argote and Ren 2012) within a diverse top management team facilitates greater recognition and use of the distinct knowledge of team members, and expands the knowledge horizons of the team in new directions. Similarly, the study by Oehmichen, Heyden, Georgakakis, and Volberda (2017) finds that diverse characteristics and knowledge heterogeneity of board of directors bring new knowledge and broader perspectives to an organization and help to enhance its ambidextrous capacity.

The ambidextrous learning capability of the “partitional” organization relies on the diverse knowledge and integrative actions of senior leaders and, more crucially, their abilities to overcome structural inertia and path dependency associated with a focus on exploitative learning. O'Reilly and Tushman (2008) argue that senior leaders' engagement in environmental scanning and their ability to sense and seize opportunities for organizational transformation are foundations of ambidexterity. Likewise, other authors highlight the critical role of transformational leadership in sustaining explorative learning and counter-balancing the drift over time towards exploitation (Eisenhardt, Furr, and Bingham 2010; Jansen, George, Van den Bosch, and Volberda 2008).

“Contextual:” semi-structures, work place and operating core. In contrast to the partitional model, the contextual ambidextrous organization achieves learning synergies between

exploitation and exploration within a single organizational unit without separating them. Ambidextrous learning is intertwined with the ongoing activities of the operating core and embedded in the work practices and culture of the organization (Simsek, Heavey, Veiga, and Souder 2009). This model builds on Gibson and Birkinshaw's (2004) idea of contextual ambidexterity which maintains that every individual in an organization is capable of developing a behavioural orientation towards dual learning. Central to this is the creation of a supportive organizational context that "enables and encourages individuals to make their own judgements about how to divide their time between conflicting demands for exploitation and exploration" (Gibson and Birkinshaw 2014, 210). Such a context emphasizes the use of job enrichment and rotation, cross-functional teams and human resource practices to provide organizational support and encourage individuals to pursue both types of learning (Adler, Goldoftas, and Levine 1999; Kang and Snell 2009; Kauppila and Tempelarr 2016). Brown and Eisenhardt's (1997, 28) concept of "semi-structures" is an appropriate description of this type of loosely coupled organization which lies between "the extremes of very rigid and highly chaotic organizations."

The free space for learning resides in the workplace where individuals and work teams are the key agents engaged in bilateral learning. Several studies have highlighted the role of flexible work design and employee autonomy in inducing ambidextrous learning behaviour (Adler, Goldoftas, and Levine 1999; Bledow, Frese, Anderson, Erez, and Farr 2009; Miron-Spektor, Gino, and Argote 2011). The reasons for this are two-fold. First, the switching of work roles or alternation between explorative and exploitative activities promotes cognitive flexibility and an ability to integrate different knowledge domains for ambidexterity (Tempelaar and Rosenkranz 2017). A typical example is the rotation of R&D engineers to work on the production floor as part of the product cycle, or the involvement of production workers in product design teams. It has long been shown that such cross-functional job

rotation, referred to as the “ruby” style of working, facilitates knowledge integration between explorative and exploitative activities in product development (Nonaka and Takeuchi 1995). Second, the process of switching from one work role to another generates a “free” cognitive and psychological space, even if momentarily, allowing creative thinking and “frame-breaking” behaviours (Tempelarr and Rosenkranz 2017). In other words, it enables individuals to break free from the constraints of the established domains to engage in more creative, explorative learning.

The contextual model also highlights the importance of individual motivation in reconciling the tension between exploitation and exploration, and in ensuring that individuals are willing to devote time and energy to undertake explorative learning which typically offers less certain and proximate returns. Kang and Snell (2009) propose two configurations of human resource practices for supporting and incentivising ambidextrous learning behaviours: a) the combination of job- or function-based development, organization-based (J-form) employee relations and error embracing performance systems to support refined interpolation; and b) the combination of skill-based development, market-based (adhocracy model) employee relations, and error avoiding performance management to support disciplined extrapolation. Other studies emphasizes work practices that promote intrinsic motivation (Kauppila 2018) and creativity (Miron-Spektor, Gino, and Argote 2011) in order to induce a stronger focus on explorative learning, and to counter the drift towards exploitative learning. Given that the balancing between exploitation and exploration in the contextual model relies heavily on the discretion and volition of front-line employees, the development of a supportive organizational context and work practices that motivate their ambidextrous learning in everyday work is critical.

Despite the emphasis on the ambidextrous learning of the operating core, leadership also plays an important enabling role. Research suggests that it is often the middle-level

managers, rather than senior leaders, who proactively create flexible and adaptive contexts to facilitate the ambidextrous learning of work groups and individuals (Taylor and Helfat 2009; Yukl 2009). This contrasts with the partitional learning organization where top management is the key actor in facilitating and sustaining ambidexterity.

“Alliance:” Overlapping structure, hybrid space and boundary-spanners. Scholars adopting a social network perspective have paid increased attention to the interplay of exploitative and explorative learning across organizational boundaries (Im and Rai 2008; Lavie and Rosenkopf 2006; Stettner and Lavie 2014). The alliance model builds on the literature on inter-organizational learning and strategic alliances which suggests that collaboration with partners facilitates learning by accessing new knowledge originating outside a firm’s boundaries (Hess and Rothaermel 2011; Lane and Lubatkin 1998). Some authors point out that the efficient specialization of exploitative and explorative learning across inter-organizational networks enable firms to enjoy the benefit of ambidexterity without the cost of having to manage the conflicting demands internally (Lavie and Rosenkopf 2006; Stettner and Lavie 2014). For example, a firm may acquire new knowledge via R&D alliances (exploration) while leveraging its established knowledge to improve and refine its products and services (exploitation). An archetypal example is Cisco which relies heavily on alliances to search for new knowledge and tap into emerging technologies while its internal organization focuses on exploiting its core competence in marketing established products (Stettner and Lavie 2014). By balancing the two types of activities across organizational boundaries, an organization can preserve the internal coherence of its learning environment while leveraging external knowledge that is distant from its own knowledge base in explorative learning. In this way, it prevents internal inertia and reduces the risk of “learning myopia” (Levinthal and March 1993).

This type of learning organization is characterized by ongoing knowledge exchange, collaborative problem-solving and reciprocal resource flows between two partner organizations. Simsek, Heavey, Veiga, and Souder (2009, 887) use the term “reciprocal ambidexterity” to describe the interdependent relationship and argue that it represents “a synergistic fusion of complementary streams of exploitation and exploration” that occur across organizational boundaries. Mom, Van Den Bosch, and Volberda (2007) stress the role of top managers in disseminating information across as well as within organizations, thereby facilitating interaction between exploitative and explorative domains. Other authors highlight the importance of knowledge sharing and integration among alliance partners in leveraging learning synergies and facilitating the successful pursuit of this form of ambidexterity (Im and Rai 2008). However, the questions of how knowledge integration actually occurs and who are the key players in this have not been closely addressed.

One might depict the alliance model as representing an “overlapping” structure where boundary spanning people situated at the interface play a vital role in facilitating ambidextrous learning. Research on collaborative partnerships between private firms and universities provides useful insights into the ambidextrous learning dynamics of this model. Oliver and Montgomery (2000) examine the emergence of new organizational hybrids in biotechnology, known as “knowledge firms” which combines the explorative activities of an established knowledge creating organization (the research university) with the exploitative activities of an established production-oriented, market-driven private corporation. Lam (2007) highlights the development of “overlapping” human resources—the “linked scientists” in industry-university partnerships where private firms seek to overcome internal inertia by building long-term relationships with the entrepreneurial scientists of universities for explorative learning. These entrepreneurial scientists are boundary-spanners who combine the knowledge logics of exploration and exploitation to engage in knowledge co-creation with

their partners from the private firms. Similarly, the study by Hess and Rothaermel (2011) shows that in the pharmaceutical industry, star scientists are important boundary-spanners who provide critical connectivity to the upstream knowledge generated from the explorative activities of their partner universities. In other words, they function as knowledge translators.

What this last group of studies has shown is that ambidextrous learning does not automatically occur as a result of access to external knowledge or inter-organizational arrangements. Instead, it requires the active engagement and integrative effort of boundary-spanning people operating at the overlapping space of the alliance partners. These people are able to access the resources of both organizations while also distancing themselves from the established structures. In other words, they not only provide the needed connectivity for ambidextrous organizational learning but can also be a vital source of new knowledge that helps to prevent internal organizational inertia. The inter-organizational network perspective of ambidexterity can be greatly enriched by paying more attention to micro-level learning dynamics at the overlapping (hybrid) space and the role of boundary-spanning individuals as agents of ambidexterity.

Conclusion

The three types of ambidextrous learning organizations denote the different ways in which organizations create “free spaces” within the constraints of “structures” that enable individuals/groups to manage the exploitation–exploration learning tension, and break the grip of organizational inertia and counter the drift towards exploitation. The extant literature on organizational ambidexterity has focused on the role of senior-management teams in managing the exploitation–exploration tension through managerial integration and provision

of a supportive organizational context. However, it has devoted less attention to other organizational members who may also facilitate ambidextrous learning. The typology developed in this chapter provides a more balanced picture by looking also at the proactive role of the operating core and boundary-spanning people as agents of ambidexterity. The analysis of the three types shows that the space for ambidextrous learning can be found at different levels of an organization as well as in the hybrid space between organizations. It suggests that the key learning agents, Giddens' (1984) notion of "knowledgeable actors," may vary according to the loci of free spaces which they recursively shape and construct through their respective actions. The variation in the structural configurations, the loci of free spaces and agents of ambidextrous learning of the three types are shown graphically in Figure 1.

*******PLACE FIGURE 1 AROUND HERE*******

Although the different modes of ambidextrous learning are not mutually exclusive, their relative prominence may vary according to the environmental context and organizational culture. For example, the "partitional" model, with its strong emphasis on the proactive role of senior leaders in resource allocation and managerial integration, builds on a top-down organizational culture. Evidence from the literature suggests that it tends to be adopted by large innovative firms operating in an environment characterized by disruptive technological change and radical innovation (O'Reilly III and Tushman 2008; Tushman, Smith, Wood, Westerman, and O'Reilly 2010). The "contextual" model, by contrast, requires the support of a more participative organizational culture which empowers organizational members, allowing them ample flexibility to switch between exploitative and explorative activities, and

to engage in bilateral learning (Gibson and Birkinshaw 2004; Kauppila and Tempelaar 2016). Ambidextrous learning is situated and rooted in the problem-solving skills of the operating core. The contextual model displays many features of the collective learning culture of the “J-form” community model of learning (Lam 2000, 2005). The widely cited example of Toyota as an archetypal ambidextrous organization is a case in point (Adler, Goldoftas, and Levine 1999; Osono, Shimizu, and Takeuchi 2008). The “alliance” model appears to be more widespread in complex knowledge fields (e.g. pharmaceutical and biotechnology) where the depth and variety of knowledge needed to both exploit and explore cannot be easily developed within the boundary of a single organization (Hess and Rothaermel 2011). Instead, the locus of learning and innovation resides in organizational networks (Powell and Grodal 2005). Some authors regard the alliance mode as a substitute for the partitional or contextual modes (Lavie and Rosenkopf 2006). However, from the viewpoint of organizational learning, there is no reason why this external-oriented model cannot be effectively combined with an internally-oriented one in order to enhance an organization’s capacity to overcome internal inertia and sustain explorative learning.

Ambidexterity is an increasingly important feature of organizing and learning in the contemporary environment. Conceptually, it highlights the limitations of the “trade-off” view and dualism of organization design theories. Since the seminal work of March (1991), there has been enduring debate about the tension between exploitation-exploration learning and the difficulties facing organizations in maintaining a balance, and in circumventing “the myopia of learning” (Levinthal and March 1993). Despite the inherent tensions and contradictions, both March (1991) and other organizational learning scholars (e.g. Argyris and Schön 1978; Senge 1993) have long maintained that organizations need to engage in both types of learning in order to obtain short-term efficiency and long-term sustainability. The concept of the ambidextrous learning organization elaborated in this chapter directs our attention to how

organizations create ambidextrous structures and spaces that give agency to individuals and teams to manage the tensions and connect the two types of learning for achieving synergies. This analytical perspective is in line with recent moves among organizational scholars towards recognizing the importance of treating the tensions and contradictions within organizations as dualities (Farjoun 2010; Farjoun, Smith, Langley, and Tsoukas 2018). As Raisch and Zimmermann (2017) argue, managing learning tensions between exploitation and exploration is not to overcome them but to “work through” the learning paradox. The typology developed in this chapter shows how the interaction between structures and agency makes it possible for organizations to work through this learning paradox in different ways.

Reference list

- Adler, P.S., and B. Borys. 1996. “Two Types of Bureaucracy: Enabling and Coercive.” *Administrative Science Quarterly* 41 (1): pp. 61–89.
- Adler, P.S., B. Goldoftas, and D.I. Levine. 1999. “Flexibility Versus Efficiency? A Case Study of Model Changeovers in the Toyota Production System.” *Organization Science* 10 (1): pp. 43–68.
- Andriopoulos, C., and M.W. Lewis. 2009. “Exploitation–Exploration Tensions and Organizational Ambidexterity: Managing Paradoxes of Innovation.” *Organization Science* 20 (4): pp. 696–717.
- Argiris, C. 1999. *On Organizational Learning*. Oxford: Blackwell.
- Argote, L., and Y. Ren. 2012. “Transactive Memory Systems: A Microfoundation of Dynamic Capabilities.” *Journal of Management Studies* 49 (8): pp. 1375–1382.

- Argyris, C., and D. Schön. 1978. *Organizational Learning: A Theory of Action Approach*. Reading, MA: Addison Wesley.
- Benner, M.J., and M.L. Tushman. 2003. "Exploitation, Exploration and Process Management: The Productivity Dilemma Revisited." *Academy of Management Review* 28 (2): pp. 238–256.
- Bledow, R., M. Frese, N. Anderson, M. Erez, and J. Farr. 2009. "A Dialectic Perspective on Innovation: Conflicting Demands, Multiple Pathways, and Ambidexterity." *Industrial and Organizational Psychology* 2 (3): pp. 305–337.
- Burns, T., G.M. and Stalker. 1961. *The Management of Innovation*. London: Tavistock.
- Diaz-Fernandez, M., S. Pasamar-Reyes, and R. Valle-Cabrera. 2017. "Human Capital and Human Resource Management to Achieve Ambidextrous Learning: A Structural Perspective." *BRQ Business Research Quarterly* 20 (1): pp. 63–77.
- Dougherty, D. 2008. "Bridging Social Constraint and Social Action to Design Organizations for Innovation." *Organization Studies* 29 (3): pp. 415–434.
- Dougherty, D., and C.H. Takacs. 2004. "Team Play: Heedful Interrelating as the Boundary for Innovation." *Long Range Planning* 37 (6): pp. 569–590.
- Eisenhardt, K.M., N.R. Furr, and C.B. Bingham. 2010. "Crossroads—Microfoundations of Performance: Balancing Efficiency and Flexibility in Dynamic Environments." *Organization Science* 21 (6): pp. 1263–1273.
- Eisenhardt, K.M., and J.A. Martin. 2000. "Dynamic Capabilities: What Are They?" *Strategic Management Journal* 21 (10/11): pp. 1105–1121.
- Farjoun, M. 2010. "Beyond Dualism: Stability and Change as a Duality." *Academy of Management Review* 35 (2): pp. 202–225.
- Farjoun, M., W. Smith, A. Langley, and H. Tsoukas. 2018. *Dualities, Dialectics, and Paradoxes in Organizational Life*. Oxford: Oxford University Press.

- Garaus, C., W.H. Güttel, S. Konlechner, I. Koprax, H. Lackner, K. Link, and B. Müller. 2016. "Bridging Knowledge in Ambidextrous Hrm Systems: Empirical Evidence from Hidden Champions." *The International Journal of Human Resource Management* 27 (3): pp. 355–381.
- Garvin, D.A. 1993. "Building a Learning Organization." *Harvard Business Review* 71 (4): pp. 78–91.
- Gibson, C.B., and J. Birkinshaw. 2004. "The Antecedents, Consequences, and Mediating Role of Organizational Ambidexterity." *Academy of Management Journal* 47 (2): pp. 209–226.
- Giddens, A. 1984. *The Constitution of Society: Outline of the Structuration Theory*. Cambridge, UK: Polity.
- Gupta, A.K., K.G. Smith, and C.E. Shalley. 2006. "The Interplay between Exploration and Exploitation." *Academy of Management Journal* 49 (4): pp. 693–706.
- Hannan, M.T., and J. Freeman. 1984. "Structural Inertia and Organizational Change." *American Sociological Review* 49 (2): pp. 149–164.
- Heavey, C., and Z. Simsek. 2017. "Distributed Cognition in Top Management Teams and Organizational Ambidexterity: The Influence of Transactive Memory Systems." *Journal of Management* 43 (3): pp. 919–945.
- Hess, A.M., and F.T. Rothaermel. 2011. "When Are Assets Complementary? Star Scientists, Strategic Alliances, and Innovation in the Pharmaceutical Industry." *Strategic Management Journal* 32 (8): pp. 895–909.
- Im, G., and A. Rai. 2008. "Knowledge Sharing Ambidexterity in Long-Term Interorganizational Relationships." *Management Science* 54 (7): pp. 1281–1296.

- Jansen, J.J.P., F.A.J. Van Den Bosch, and H.W. Volberda. 2006. "Exploratory Innovation, Exploitative Innovation, and Performance: Effects of Organizational Antecedents and Environmental Moderators." *Management science* 52 (11): pp. 1661–1674.
- Jansen, J.J.P., G. George, F.A.J. Van den Bosch, and H.W. Volberda. 2008. "Senior Team Attributes and Organizational Ambidexterity: The Moderating Role of Transformational Leadership." *Journal of Management Studies* 45 (5): pp. 982–1007.
- Kang, S.-C., and S.A. Snell. 2009. "Intellectual Capital Architectures and Ambidextrous Learning: A Framework for Human Resource Management." *Journal of Management Studies* 46 (1): pp. 65–92.
- Kauppila, O.-P. 2018. "How Does It Feel and How Does It Look? The Role of Employee Motivation in Organizational Learning Type." *Journal of Organizational Behavior* 39 (8): pp. 941–955.
- Kauppila, O.-P., and M.P. Tempelaar. 2016. "The Social-Cognitive Underpinnings of Employees' Ambidextrous Behaviour and the Supportive Role of Group Managers' Leadership." *Journal of Management Studies* 53 (6): pp. 1019–1044.
- Lam, A. 2000. "Tacit Knowledge, Organizational Learning and Societal Institutions: An Integrated Framework." *Organization Studies* 21 (3): pp. 487–513.
- Lam, A. 2005. "Organizational Innovation." In *The Oxford Handbook of Innovation*, edited by J. Fagerberg, D. Mowery, and R.R. Nelson, pp. 115–147. Oxford: Oxford University Press.
- Lam, A. 2007. "Knowledge Networks and Careers: Academic Scientists in Industry–University Links." *Journal of Management Studies* 44 (6): pp. 993–1016.
- Lane, P.J., and M. Lubatkin. 1998. "Relative Absorptive Capacity and Interorganizational Learning." *Strategic Management Journal* 19 (5): pp. 461–477.

- Lavie, D., and L. Rosenkopf. 2006. "Balancing Exploration and Exploitation in Alliance Formation." *Academy of Management Journal* 49 (4): pp. 797–818.
- Leonard-Barton, D. 1992. "Core Capabilities and Core Rigidities: A Paradox in Managing New Product Development." *Strategic Management Journal* 13 (S1): pp. 111–125.
- Levinthal, D.A., and J.G. March. 1993. "The Myopia of Learning." *Strategic management journal* 14 (S2): pp. 95–112.
- Levinthal, D., and C. Rerup. 2006. "Crossing an Apparent Chasm: Bridging Mindful and Less-Mindful Perspectives on Organizational Learning." *Organization science* 17 (4): pp. 502–513.
- Lewis, M.W. 2000. "Exploring Paradox: Toward a More Comprehensive Guide." *Academy of Management review* 25 (4): pp. 760–776.
- Lubatkin, M.H., Z. Simsek, Y. Ling, and J.F. Veiga. 2006. "Ambidexterity and Performance in Small-to Medium-Sized Firms: The Pivotal Role of Top Management Team Behavioral Integration." *Journal of Management* 32 (5): pp. 646–672.
- Luger, J., S. Raisch, and M. Schimmer. 2018. "Dynamic Balancing of Exploration and Exploitation: The Contingent Benefits of Ambidexterity." *Organization Science* 29 (3): pp. 449–470.
- March, J.G. 1991. "Exploration and Exploitation in Organizational Learning." *Organization Science* 2 (1): pp. 71–87.
- Milosevic, I., A.E. Bass, and G.M. Combs. 2018. "The Paradox of Knowledge Creation in a High-Reliability Organization: A Case Study." *Journal of Management* 44 (3): pp. 1174–1201.
- Mintzberg, H. 1979. *The Structuring of Organizations*. Englewood Cliffs, NJ.: Prentice Hall.

- Miron-Spektor, E., F. Gino, and L. Argote. 2011. "Paradoxical Frames and Creative Sparks: Enhancing Individual Creativity through Conflict and Integration." *Organizational Behavior and Human Decision Processes* 116 (2): pp. 229–240.
- Mom, T.J.M., F.A.J. Van Den Bosch, and H.W. Volberda. 2007. "Investigating Managers' Exploration and Exploitation Activities: The Influence of Top-Down, Bottom-up, and Horizontal Knowledge Inflows." *Journal of Management Studies* 44 (6): pp. 910–931.
- Nonaka, I. 1994. "A Dynamic Theory of Organizational Knowledge Creation." *Organization Science* 5 (1): pp. 14–37.
- Nonaka, I., and H. Takeuchi. 1995. *The Knowledge Creation Company: How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford University Press.
- O'Reilly III, C.A., and M.L. Tushman. 2008. "Ambidexterity as a Dynamic Capability: Resolving the Innovator's Dilemma." *Research in Organizational Behavior* 28: pp. 185–206.
- Oehmichen, J., M.L.M. Heyden, D. Georgakakis, and H.W. Volberda. 2017. "Boards of Directors and Organizational Ambidexterity in Knowledge-Intensive Firms." *The International Journal of Human Resource Management* 28 (2): pp. 283–306.
- Oliver, A.L., and K. Montgomery. 2000. "Creating a Hybrid Organizational Form from Parental Blueprints: The Emergence and Evolution of Knowledge Firms." *Human Relations* 53 (1): pp. 33–56.
- Örtenblad, A. 2002. "A Typology of the Idea of Learning Organization." *Management Learning* 33 (2): pp. 213–230.
- Osono, E., N. Shimizu, and H. Takeuchi. 2008. *Extreme Toyota: Radical Contradictions That Drive Success at the World's Best Manufacturer*. Hoboken, NJ: John Wiley & Sons.

- Papachroni, A., L. Heracleous, and S. Paroutis. 2015. "Organizational Ambidexterity through the Lens of Paradox Theory: Building a Novel Research Agenda." *The Journal of Applied Behavioral Science* 51 (1): pp. 71–93.
- Pedler, M., J. Burgoyne, and T. Boydell. 1991. *The Learning Company: A Strategy for Sustainable Growth*. Maidenhead, UK: McGraw-Hill.
- Powell, W.W., and S. Grodal. 2005. "Networks of Innovators." In *The Oxford Handbook of Innovation*, edited by J. Fagerberg, D. Mowery, and R.R. Nelson, pp. 56–85. Oxford: Oxford University Press.
- Raisch, S., J. Birkinshaw, G. Probst, and M.L. Tushman. 2009. "Organizational Ambidexterity: Balancing Exploitation and Exploration for Sustained Performance." *Organization science* 20 (4): pp. 685–695.
- Raisch, S., T.J. Hargrave, and A.H. Van De Ven. 2018. "The Learning Spiral: A Process Perspective on Paradox." *Journal of Management Studies* 55 (8): pp. 1507–1526.
- Raisch, S., and A. Zimmermann. 2017. "Pathways to Ambidexterity." In *The Oxford Handbook of Organizational Paradox*, edited by W.K. Smith, M.W. Lewis, P. Jarzabkowski, and A. Langley, pp. 315–332. Oxford: Oxford University Press.
- Senge, P.M. 1993. *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York: Doubleday.
- Simsek, Z., C. Heavey, J.F. Veiga, and D. Souder. 2009. "A Typology for Aligning Organizational Ambidexterity's Conceptualizations, Antecedents, and Outcomes." *Journal of Management Studies* 46 (5): pp. 864–894.
- Smith, W.K., and M.W. Lewis. 2011. "Toward a Theory of Paradox: A Dynamic Equilibrium Model of Organizing." *Academy of management Review* 36 (2): pp. 381–403.
- Smith, W.K., M.W. Lewis, P. Jarzabkowski, and A. Langley. 2017. *The Oxford Handbook of Organizational Paradox*. Oxford: Oxford University Press.

- Smith, W.K., and M.L. Tushman. 2005. "Managing Strategic Contradictions: A Top Management Model for Managing Innovation Streams." *Organization Science* 16 (5): pp. 522–536.
- Sørensen, J.B., and T.E. Stuart. 2000. "Aging, Obsolescence, and Organizational Innovation." *Administrative Science Quarterly* 45 (1): pp. 81–112.
- Stettner, U., and D. Lavie. 2014. "Ambidexterity under Scrutiny: Exploration and Exploitation Via Internal Organization, Alliances, and Acquisitions." *Strategic Management Journal* 35 (13): pp. 1903–1929.
- Sydow, J., L. Lindkvist, and R. DeFillippi. 2004. "Project-Based Organizations, Embeddedness and Repositories of Knowledge." *Organization Studies* 25 (9): pp. 1475–1489.
- Taylor, A., and C.E. Helfat. 2009. "Organizational Linkages for Surviving Technological Change: Complementary Assets, Middle Management, and Ambidexterity." *Organization Science* 20 (4): pp. 718–739.
- Tempelaar, M.P., and N.A. Rosenkranz. 2017. "Switching Hats: The Effect of Role Transition on Individual Ambidexterity." *Journal of Management*. Published online June 22, 2017. doi: <https://doi.org/10.1177/0149206317714312>.
- Thompson, J.D. 1967. *Organizations in Action: Social Science Bases of Administration*. New York: McGraw-Hill.
- Tushman, M., W.K. Smith, R.C. Wood, G. Westerman, and C. O'Reilly. 2010. "Organizational Designs and Innovation Streams." *Industrial and Corporate Change* 19 (5): pp. 1331–1366.
- Tushman, M.L., and C.A. O'Reilly III. 1996. "Ambidextrous Organizations: Managing Evolutionary and Revolutionary Change." *California Management Review* 38 (4): pp. 8–29.

- Womack, J.P., D.T. Jones, and D. Roos. 1990. *Machine That Changed the World*. New York: Rawson Associates.
- Yukl, G. 2009. "Leading Organizational Learning: Reflections on Theory and Research." *The Leadership Quarterly* 20 (1): pp. 49–53.
- Zimmermann, A., S. Raisch, and L.B. Cardinal. 2018. "Managing Persistent Tensions on the Frontline: A Configurational Perspective on Ambidexterity." *Journal of Management Studies* 55 (5): pp. 739–769.

Figure 1. Three types of ambidextrous learning organizations



